

ABSTRACT

An apparatus for refrigeration and heating comprising a refrigeration machine for providing cold and hot fluid, the cold and hot fluid delivered through a cold supply pipe and a hot supply/return pipe to a fan coil unit. An upstream two position three-way valve connected to the cold supply pipe and to the hot supply/return pipe, a modulating three-way mixing valve located downstream of the upstream two position three-way valve, and a fan coil unit pump located downstream of the modulating three-way mixing valve. The modulating three-way mixing valve is for allowing none, a portion of, or all of the fluid in the coil to be recirculated through the coil by the fan coil unit pump. A downstream two position three-way valve located downstream of the modulating three-way mixing valve and for returning fluid to the cold return pipe or the hot supply/return pipe. The fan coil unit for refrigerating a room or walk in cooler by pumping cold fluid through the coil. A total air pressure drop sensor to detect a pressure differential across the coil and for sensing a predetermined maximum pressure differential across the coil indicating ice blockage in the coil. Once coil blockage is detected, hot fluid from the hot supply/return pipe is automatically pumped through the coil until the fluid exiting the coil is at a predetermined temperature.